

## **ETV Collaborative Evaluations of Market-Ready Technologies for Arsenic Removal in Drinking Water**

Jeffrey Adams

Environmental Engineer

U.S. EPA Water Quality Management Branch (WQMB), Water Supply and Water Resources Division (WSWRD), National Risk Management Research Laboratory (NRMRL)

(513) 569-7835

adams.jeff@epa.gov

**Authors:** Jeffrey Adams

U.S. EPA WQMB/WSWRD/NRMRL

**Keywords:** ETV, arsenic, drinking water treatment, market-ready technologies, small systems

### **Environmental Issue**

How well do some commercially marketed package treatment systems perform to reduce arsenic from drinking water supplies?

### **Science Approach and Partnerships**

The Environmental Technology Verification (ETV) Drinking Water Systems (DWS) Center is a partnership between the U.S. Environmental Protection Agency (U.S. EPA) Office of Research and Development, and NSF International to provide independent evaluations of water treatment technologies to help address public and governmental needs for applied research results. The Center helps state agencies, utilities, and scientific and engineering organizations to find and implement solutions to comply with current and anticipated drinking water regulations. A diverse stakeholder group offers recommendations for prioritizing technology testing issues. Testing protocols are developed by independent experts and reviewed and revised through a stakeholder process. This provides uniform test plans with well defined quality assurance criteria for consistent technology evaluation and analysis of results. The cost of testing and reporting is shared between the U.S. EPA and the vendor, and some funds and resources are leveraged from states and other research organizations. ETV is conducting evaluations on technologies for the removal of arsenic in drinking water at several field sites across the United States. Studies are conducted by independent organizations, with additional audits and oversight during the testing provided by NSF and the U.S. EPA. Test data and final reports are peer-reviewed for quality and engineering issues by external reviewers, NSF, and the U.S. EPA. The ETV DWS Center has completed verifications of eight market-ready technologies, and additional studies are ongoing. Studies focus on water quality performance and operations plus maintenance issues associated with a number of technology categories.

### **Impact and Outcomes**

ETV provides information to help states, utilities, and other organizations select appropriate water treatment technologies to meet the 10-ppb arsenic regulatory standard. Many of the ETV verified technologies demonstrated the capability to reduce arsenic levels in drinking water to 5 ppb or less. This provides several available alternatives for off-the-shelf technology products to the estimated 4,100 small drinking water systems anticipated to be required to install treatment to meet the new arsenic standard. State agencies have indicated ETV studies may also help to

minimize pilot testing requirements and help expedite the approval and implementation of technologies at sites. Also, ETV results help provide technology vendors with valuable data on product weaknesses that may be addressed in subsequent product modifications.